

## **REMARKS**

### **Amendments**

Except as expressly discussed below, any changes made to the application are not made in reply to any rejection or other communication from the Examiner, but are made solely to improve the clarity, readability, or understanding of the application or the portion of the application changed. No amendment was made to add new matter or narrow the scope of the claims. Indeed, all amendments were made merely as cosmetic amendments to improve the readability and coherence of the resulting patent.

### **Status of Prosecution**

Applicant filed the original application on February 12, 2002. The Examiner mailed a non-final office action on April 21, 2005. This paper is in Reply to that office action. Applicant requests reconsideration and withdrawal of the rejections raised in that office action.

Claims 1-46 are pending. The Examiner rejected claims 1-46.

### **Examiner's General Objections and Rejections**

On page 2 of the Office Action the Examiner required a change in the title of the invention and implied that an amendment of the abstract would be appropriate. In reply, Applicant states that the Examiner's statements are not properly characterized as rejections under 35 U.S.C. §112, but as objections. Applicant has, however, revised the abstract, and amended the title, as shown in the amendments to the specification above.

On pages 2-4 the Examiner rejected claims 1, 8, 9, 11, 16, 18, 22, 26, 33, 39, 41 and 43 under 35 U.S.C. §112, second paragraph. Applicant respectfully traverses the §112 rejections as further amplified in the Remarks section of this paper.

On pages 4-11 the Examiner rejected claims 1-8, 10-11, 13-14, 16-17, 19-20, 31, 33, 35 and 37 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,698,021 issued on February 24, 2004 to Amini *et al.* ("Amini Patent"), an argument Applicant respectfully traverses.

On pages 11-13 the Examiner rejected claims 24, 26-28 and 30 under 35 U.S.C. §103(a), as being unpatentable over the Amini Patent in view of an electronic article described as "Fickes," an argument that Applicant respectfully traverses.

On page 14 the Examiner rejected claims 25 and 29 under 35 U.S.C. §103(a), as being unpatentable over the Amini Patent and Fickes, in further view of U.S. Patent No. 6,011,579 issued on January 4, 2000 to Newlin (“Newlin Patent”), an argument that Applicant respectfully traverses.

On pages 15-18 the Examiner rejected claims 9, 12, 15, 18, 21-23, 32, 34, 36, and 38-46 over the Amini Patent in view of the Newlin Patent, an argument that Applicant respectfully traverses.

Applicant respectfully urges, therefore, that the rejections of the Examiner be withdrawn.

#### **Rejections Under 35 U.S.C. §112**

##### **“Independent,” “Integrated,” and “Centralized”**

On page 3 of the Office Action the Examiner asserts that the terms “independent” and “integrated” and “centralized” are contradictory. Applicant respectfully disagrees, and traverses the rejections as arising under 35 U.S.C. §112.

The term “independent,” as shown in the attached sheets included collectively with this Reply as **Exhibit A**, comprising extracts from the Merriam-Webster Dictionary (electronic version), means at least that the system does not require or rely on other systems. The term “integrated” includes the meaning that the components of the system are “formed, coordinated, or blended into a functioning or unified whole.” The term “centralized” means to “consolidate,” and in the context of the application the specification provides that “...as also shown in Figures 1 and 3, a hub 21 is provided. In a preferred embodiment of the present invention, hub 21 is an Ethernet switch or switches. Use of an Ethernet switch is, however, not a limitation on the present invention, and hub 21 may include one or more variations of switches, including fibre channel switches (not shown).”

##### **“High Speed”**

The term “high speed” means at least what is disclosed in the specification of the application, namely that the system provides “data management capable of managing data, including surveillance information, in substantially real time.” See Application, page 6, lines 7-11. The specification also indicates that the system provides “at least the capability to transmit data at significantly higher speeds than current systems provide.” See Application, page 6, lines 18-19.

The Examiner's comments on page 3 of the Office Action about the term "high speed," and Applicant's replies, should also be reconsidered in view of Applicant's following comments about hindsight. Thus, as shown in extracts from *Newton's Telecom Dictionary* attached as **Exhibit B**, a person skilled in the art will appreciate that the term "high speed" (in conjunction with the term "broadband") are terms that had a technological meaning at the time the invention was made, have a meaning today, and may have yet another meaning tomorrow, due to the speed at which technology changes. Thus, for example, the Examiner suggests that the terms "high speed" and "broadband" or the terms "high speed" and "without broadband" involve the questions of a dialup connection of 56kbps. (See last line, page 3, Office Action.) According to *Newton's Telecom Dictionary*, however, "[today's common definition of broadband is any circuit significantly faster than a dialup phone line...[so that] the term 'broadband' can mean anything you want it to be so long as it's 'fast.'" See *Newton's Telecom Dictionary*, page 126, emphasis added. Likewise, the term "high speed" is a term also recognized by one skilled in the art. For example, the words "high speed" in conjunction with the words "local network" means "high throughput." A "high speed signal" is one "traveling at a DS-3 rate of 44.736 MBPS...or at either 90 Mbps or 180 Mbps (Optical mode)." See *Newton's Telecom Dictionary*, page 393.

While not required by any rejection of the Examiner, Applicant has amended the claims of the application by deleting references to seven (7) frames per second.

Accordingly, the Examiner's rejections of those terms under 35 U.S.C. §112 should be withdrawn.

#### A Special Note About Hindsight

The remarks above, and the fact that the system shown and claimed in the application has the capability of transmitting data "at significantly higher speeds than current systems provide," also suggests it would be appropriate to include a comment normally associated with discussions of rejections under 35 U.S.C. §103: Hindsight is impermissible, and for good reasons.

Through no fault of Applicant, through no fault of the Examiner, almost four (4) years passed between conception of the invention and mailing of the office action. In this field of art, that is an inordinately long time. Innovation continues at dizzying speeds. For those involved in the art of telecommunications, it is difficult to un-ring the proverbial bell: it is hard to remember how little was known or suggested when the subject matter of the application was invented. It is

difficult to appreciate how innovative were the concepts disclosed and claimed in the application at the time of invention. Accordingly, Applicant respectfully requests that the Examiner, who obviously is learned in the field of his art, to reassess some of the rejections in view of *why* hindsight is impermissible.

As the Examiner knows, many cases suggest not only the rule that hindsight is inappropriate, but more importantly explain *why* hindsight is inappropriate. Examples include *In re Debiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999); *Ecolochem, Inc. v. Southern California Edison Company*, Fed. Cir. No. 99-1043, September 7, 2000; *In re Sang-su Lee*, 277 F.3d at 1344, 61 USPQ2d at 1434-1435 (CAFC, 2002). These cases remind us that obviousness must not be viewed retrospectively, but solely “at the time the invention was made.” *In re Debiczak*, 50 USPQ2d 1614 at 1617, citing 35 U.S.C. §103.

As the Federal Circuit observed:

Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field...Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one to “fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against the teacher.”

*In re Debiczak*, 50 USPQ2d 1614 at 1617.

#### **“Substantially”**

The Examiner stated at page 3 of the Office Action that the term “substantially” as used in claims 8, 9, 11, 16, 18, 26, 33, 39, 41 and 43 appear unclear. Applicant respectfully disagrees, and traverses the rejection under 35 U.S.C. §112.

The following comments also apply to all rejections by the Examiner under 35 U.S.C. §112.

§112/2, requires that a specification conclude with one or more claims “particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” The Federal Circuit has held that for a claim to comply with § 112/2, “it must satisfy two requirements: it must set forth what ‘the applicant regards as his invention,’ and second, it

must do so with sufficient particularity and distinctness, *i.e.*, the claim must be sufficiently ‘definite.’” *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372 (Fed. Cir. 2000).

A claim, however, is not necessarily “indefinite” even if it is hard to understand. Claims also are not indefinite because the claims are difficult to construe or because witnesses and courts may disagree on how the claims should be construed. *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Indeed, the Federal Circuit recently held that a claim is not necessarily indefinite unless it is “insolubly ambiguous.” *Honeywell Int’l, Inc. v. United States Int’l Trade Comm’n*, 341 F.3d 1332 (Fed. Cir. 2003).

The Federal Circuit also has held that the “requirement that the claims ‘particularly point out and distinctly claim’ the invention is met when a person experienced in the field of the invention would understand the scope of the subject matter that is patented when the claim is read in conjunction with the rest of the specification. ‘If the claims when read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, §112 demands no more.’” *S3 Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 1367 (Fed. Cir. 2001).

As to the word “substantially,” the Federal Circuit, in a decision issued March 7, 2005, held that the term “substantially” is a “meaningful modifier implying ‘approximate’ rather than ‘perfect.’” *Playtex Products, Inc. v. Proctor & Gamble Company, et al.*, (Fed. Cir., decision 04-1200, 2005) at page 11 of the slip opinion. The Court noted that in earlier decisions it had refused “to impose a precise numeric constraint” on a term that included “substantially,” noting that the word is just one of a variety of words “of approximation, such as ‘generally’ and ‘substantially,’ [that] are descriptive terms ‘commonly used in patent claims to avoid a strict numerical boundary to a specific parameter.’” *Playtex Products*, citing *Cordis Corp. v. Medtronics AVE, Inc.*, 339 F.3d 1352, 1361 (Fed. Cir. 2003) and *Anchor Wall Sys. V. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298 (Fed. Cir. 2003).

The word “substantially” also has been approved expressly as noted in MPEP §2173.05(b) as a term often used in conjunction with another term to describe a particular characteristic. It is considered a broad term held to be definite. Thus, for example, dependent claim 8 is directed to “one or more data acquisition devices...equipped to substantially simultaneously record and transmit the data.” Thus from a temporal view, data acquisition devices need not be capable of simultaneously both recording and transmitting data, but only

must do so with sufficient particularity and distinctness, *i.e.*, the claim must be sufficiently ‘definite.’” *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372 (Fed. Cir. 2000).

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The Federal Circuit also has held that the “requirement that the claims ‘particularly point out and distinctly claim’ the invention is met when a person experienced in the field of the invention would understand the scope of the subject matter that is patented when the claim is read in conjunction with the rest of the specification. ‘If the claims when read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, §112 demands no more.’” *S3 Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 1367 (Fed. Cir. 2001).

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The word “substantially” also has been approved expressly as noted in MPEP §2173.05(b) as a term often used in conjunction with another term to describe a particular characteristic. It is considered a broad term held to be definite. Thus, for example, dependent claim 8 is directed to “one or more data acquisition devices...equipped to substantially simultaneously record and transmit the data.” Thus from a temporal view, data acquisition devices need not be capable of simultaneously both recording and transmitting data, but only

substantially simultaneously. Likewise, for example, dependent claim 11 is directed to “one or more cameras...equipped to substantially simultaneously record visual information from more than one node on the system.” Again, the recording of visual information need not occur precisely simultaneously, but only substantially simultaneously. The word “substantially” is used similarly in the remaining claims rejected by the Examiner for including “substantially.”

#### **Negative Limitation**

On page 3 of the Office Action the Examiner asserts, among other arguments, that independent claim 16 includes a negative limitation. To the extent that Applicant understands the basis for the rejection as set forth by the Examiner, it is first noted that negative limitations are now perfectly acceptable. As stated succinctly in the MPEP, the “current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation.” See MPEP §2173.05(j).

Applicant also has amended claim 16, among others, as shown in the Listing of Claims, to delete reference to seven frames per second. Accordingly, the remaining comments of the Examiner are now moot.

#### **“Human Usable Format”**

On page 4 of the Office Action the Examiner suggests that “human usable format” in claim 22 is unclear. Applicant presumes that the Examiner intended to address claim 23 rather than claim 22. In a similar distinction between computer programs identified as written in machine language (object code) and programming language (source code), “human usable format” is intended to indicate that the software presents the data in a format that is at least readable by humans.

Applicant respectfully urges, therefore, that all rejections under 35 U.S.C. §112 be withdrawn.

#### **Rejections Under 35 U.S.C. §102(e)**

On pages 4-11 the Examiner rejected claims 1-8, 10-11, 13-14, 16-17, 19-20, 31, 33, 35 and 37 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,698,021 issued on February 24, 2004 to Amini *et al.* (“Amini Patent”) an argument Applicant respectfully traverses.

35 U.S.C. §102 (e), as revised, and cited by the Examiner as the basis for rejection of independent claims 1, 16, 31, and 35, and the related dependent claims, provides:

“A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.”

Applicant submits that the Amini Patent does not satisfy the “all-elements” rule of MPEP §2131, which provides:

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference...The identical invention must be shown in as complete detail as contained in the claim...[and] the elements must be arranged as required in the claim. (Emphasis added)

While the reference includes words used by Applicant to describe elements of the apparatus in the Amini Patent, the use of similar words is not determinative. The words in the reference describe apparatus structure, and cooperation of structure, that are different than those disclosed in the Application. MPEP §2111.01 clearly requires that “...pending claims must be given their broadest reasonable interpretation consistent with the specification.” Accordingly, while the terms used to describe various elements are similar, the terms describe structural components that cooperate in completely different ways. Terms must be viewed “in light of the specification.”

Contrary to the Examiner’s argument that all elements are disclosed in the Amini Patent, a system that is independent and integrated is not, so the rejection of at least independent claims 1, 16, 31, and 35 is unsupported, and therefore should be withdrawn.

In addition, contrary to the Examiner’s argument that all elements are disclosed in the Amini Patent, a system for providing high speed transmittal of audio, visual, telephony and other data across the network is not, so the rejection of at least independent claims 1, 16, 31, and 35 is unsupported, and therefore should be withdrawn. See application, page 2, lines 1-9.

Also contrary to the Examiner's argument that all elements are disclosed in the Amini Patent, a system capable of accumulating surveillance information from at least one surveillance data acquisition device is not, so the rejection of at least independent claim 31 should be withdrawn.

Also contrary to the Examiner's argument that all elements are disclosed in the Amini Patent, a system capable of routing the surveillance information to one or more subsystems for data storage is not, so the rejection of at least independent claim 31 should be withdrawn.

Also contrary to the Examiner's argument that all elements are disclosed in the Amini Patent, a system capable of updating the surveillance information, analyzing surveillance information, reporting the surveillance information on demand, providing telephonic communications across the at least one independent data transmission system, and continually repeating at least those steps is not, so the rejection of at least independent claim 31 should be withdrawn.

Also contrary to the Examiner's argument that all elements are disclosed in the Amini Patent, a system "including a plurality of devices interconnectable with the independent data transmission system capable of...(3) routing the surveillance information to one or more subsystems for data storage" is not shown or claimed in the Amini Patent, and therefore any rejection of claim 31 on any basis should be withdrawn.

Also contrary to the Examiner's argument that all elements are disclosed in the Amini Patent, the camera and other devices shown and claimed in the application are capable of performing analyses, while the video device shown in the Amini Patent are connected strictly to the server (see Amini Patent, Fig. 4), and are analogue, rather than digital.

Also contrary to the Examiner's argument that all elements are disclosed in the Amini Patent, a system that includes at least one high speed network for transmitting the digital data is not, so the rejection of at least independent claim 35 should be withdrawn.

For those structural reasons, and for the reasons articulated below under "Discussions of Rejections under §102," Applicant respectfully requests that the rejection be withdrawn.

#### **Discussion of Rejections under 35 U.S.C. §102**

For fundamental teaching on the doctrine of anticipation, one must consider the decision of Judge Rich in *In re William J. King*, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986):

It is axiomatic that anticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim, and that anticipation is a fact question subject to review under the clearly erroneous standard. *Lindemann Maschinenfabrik v. American Hoist and Derrick*, 730 F.2d 1452, 1457, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). Our review of a finding of anticipation is the same whether it was made by the board or by a district court.

*In re William J. King* at 231 USPQ 139 (emphasis added).

Further, for a reference to anticipate a claim under 35 U.S.C. §102, that reference must teach, or identically describe, each and every element or step of the claim in the identical orientation. *Atlas Powder v. E.I. duPont*, 750 F.2d 1569, 224 USPQ 409 (Fed. Cir. 1984); *Jamesbury Corp. v. Litton Industrial Products*, 756 F.2d 1556, 225 USPQ 253 (Fed. Cir. 1985) (emphasis added). “Anticipation” is a restrictive concept, requiring the presence in a single prior art disclosure of each and every element of a claimed invention. The test for infringement by anticipation should be rephrased as, “That which would *literally* infringe if later in time anticipates if earlier than the date of invention.” (Emphasis in the original) See also Lewmar Marine, Inc. v. Bariant, Inc., 827 F.2d 744, 3 USPQ2d 1766 (Fed. Cir. 1987). Further, as held in *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ2d 1001, 18 USPQ2d 1896 (Fed. Cir. 1991), “there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention.” (Emphasis added.) As discussed above, the Reference does not disclose the identical structure and cooperation of structure as described in the Application examined by the Examiner. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983).

Therefore, Applicant respectfully urges that the cited reference does not anticipate Applicant's invention as claimed, and that the rejections be withdrawn.

#### **First Rejection under 35 U.S.C. §103(a)**

On pages 11-13 the Examiner rejected independent claim 24, and dependent claims 26-28 and 30 under 35 U.S.C. §103(a), as being unpatentable, or obvious, over the Amini Patent in view of an electronic article described as “Fickes,” an argument that Applicant respectfully traverses.

35 U.S.C. §103 provides:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Applicant respectfully submits, however, that the differences between the subject matter sought to be patented, and the references cited by the Examiner, are not such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.

Applicant adopts and incorporates by reference the arguments made in connection with the rejections under 35 U.S.C. §102 above.

Moreover, as stated in the MPEP, to establish a *prima facie* case of obviousness three basic criteria must be satisfied: (1) a suggestion or motivation to modify the cited reference or to combine the teachings in the cited references; (2) a reasonable expectation of success; and (3) the cited references must teach or suggest all the claim limitations. See MPEP §706.02(j). The cited reference “must expressly or impliedly suggest the claimed invention....”

As also provided in MPEP §2143.01, the “mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.”

Also, “most if not all inventions arise from a combination of old elements...Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by applicant.” See In re Kotzab, 217 F.3d 1365, 55 USPQ2d 1313 (Fed. Cir. 2000).

Further, references cannot be modified or combined if their function is destroyed. See MPEP §2143.01. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

In addition, Applicant's disclosure should not be used as a blueprint to reconstruct the claimed coupler out of isolated teachings in the prior art. Hindsight, in other words, as earlier emphasized, is impermissible. *Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

Additionally, all claim limitations must be considered, especially when missing from the alleged prior art. That is because 35 U.S.C. §103 is concerned with differences between the subject matter sought to be patented, and the alleged prior art, with the subject matter sought to be patented viewed as a whole. *In re Fine*, 873 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). In addition to reminding that retrospective findings of obviousness are impermissible, the cases also require proof, actual evidence, to support an obviousness rejection.

The Federal Circuit has emphasized that evidence must support the assertion of a suggestion, teaching, or motivation; if there is no evidence of such a suggestion, teaching, or motivation, it is inappropriate to "make the inventor's disclosure a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." *In re Debiczak*, 50 USPQ2d 1614 at 1617. The evidence, in other words, must show a "skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." *Ecolochem, Inc. v. Southern California Edison Company*, at page 11, quoting *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998). The Court also emphasized the proof standard by confirming that "[A] rejection cannot be predicated on the mere identification...of individual components of claimed inventions. Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." *Ecolochem, Inc. v. Southern California Edison Company*, at page 11, quoting *In re Werner Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

### **The Cited References**

Regarding the base, or primary, reference, namely the Amini Patent, the Applicant already has shown that one of the elements of a *prima facie* case of obviousness, that the cited reference "must expressly or impliedly suggest the claimed invention....," has not been

established by the Examiner. Nothing in the secondary reference, or Fickes, shows the slightest motivation, suggestion, or teaching of the desirability of making the specific combination made by applicant. At most, Fickes discussed merely the use of a remote monitoring system, with no specifics.

Applicant also notes that the Fickes article is simply that, apparently a news article, not an extract from a learned treatise. The inductive arguments the Examiner seeks to make from that article are hearsay, not self-authenticating, have no probative value, and should be accorded no relevancy in connection with the examination of the application, and certainly not to support the truth of the Examiner's arguments.

The application of Applicant is expressly directed to a private system. For example, independent claim 1 is directed to "an independent and integrated centralized high speed system for data management...[that includes]... a private data processing center interconnectable with the one or more data acquisition devices, and means for transmitting the data across the system, for managing the data." (Emphasis added.) None of the references cited for rejection under 35 U.S.C. §103, including the Amini Patent, are directed to a private system, and at least for that reason all rejections for "obviousness" should be withdrawn.

Accordingly, the Examiner has not made a prima facie showing of obviousness, and the rejections of claims therefore should be withdrawn.

#### **Second Rejection under 35 U.S.C. §103(a)**

On page 14 the Examiner rejected claims 25 and 29 under 35 U.S.C. §103(a), as being unpatentable over the Amini Patent and Fickes, in further view of U.S. Patent No. 6,011,579 issued on January 4, 2000 to Newlin ("Newlin Patent"), an argument that Applicant respectfully traverses.

35 U.S.C. §103 provides:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Applicant respectfully submits, however, that the differences between the subject matter sought to be patented, and the references cited by the Examiner, are not such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.

Applicant adopts and incorporates by reference the arguments made in connection with the rejections under 35 U.S.C. §102 and §103 above.

Regarding the base, or primary, reference, namely the Amini Patent, the Applicant already has shown that one of the elements of a *prima facie* case of obviousness, that the cited reference “must expressly or impliedly suggest the claimed invention....,” has not been established by the Examiner. Nothing in the secondary reference, or Fickes, shows the slightest motivation, suggestion, or teaching of the desirability of making the specific combination made by applicant.

Applicant also notes that the Fickes article is simply that, apparently a news article, not an extract from a learned treatise. The inductive arguments the Examiner seeks to make from that article are hearsay, not self-authenticating, have no probative value, and should be accorded no relevancy in connection with the examination of the application, and certainly not to support the truth of the Examiner’s arguments.

Because neither the primary reference nor the secondary reference support a *prima facie* showing of obviousness, the tertiary reference can have no more validity in supporting the Examiner’s arguments.

Accordingly, the Examiner has not made a *prima facie* showing of obviousness, and the rejections of claims therefore should be withdrawn.

#### **Third Rejection under 35 U.S.C. §103(a)**

On pages 15-18 the Examiner rejected claims 9, 12, 15, 18, 21-23, 32, 34, 36, and 38-46 over the Amini Patent in view of the Newlin Patent, an argument that Applicant respectfully traverses.

Applicant respectfully submits, however, that the differences between the subject matter sought to be patented, and the references cited by the Examiner, are not such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.

Applicant adopts and incorporates by reference the arguments made in connection with the rejections under 35 U.S.C. §102 and §103 above.

Regarding the base, or primary, reference, namely the Amini Patent, the Applicant already has shown that one of the elements of a *prima facie* case of obviousness, that the cited reference "must expressly or impliedly suggest the claimed invention....," has not been established by the Examiner. Nothing in the secondary reference, or the Newlin Patent, shows the slightest motivation, suggestion, or teaching of the desirability of making the specific combination made by applicant.

Because the primary reference does not meet the requirements necessary to establish a *prima facie* case of obviousness, the secondary reference can have no more validity in supporting the Examiner's arguments.

The Newlin Patent also is directed to analogue telephone sets, unlike the digital audio and video components of the application. See Newlin Patent, Figure 3. Accordingly, the Newlin Patent would not disclose a high speed system.

Accordingly, the Examiner has not made a *prima facie* showing of obviousness, and the rejections of claims therefore should be withdrawn.

### Conclusions

For the reasons set forth above, Applicant respectfully requests reconsideration and withdrawal of the rejection of all claims.

The remaining references cited by the Examiner, but not relied on for the rejection of claims, have been noted. Because the remaining references are no more pertinent than the applied references, a detailed discussion of these remaining references is deemed unnecessary for a full and complete Reply to the Office Action.

In conclusion, Applicant respectfully asserts that this Reply is complete as contemplated in 37 CFR §1.111, that claims are patentable for the reasons set forth above, and that the Application is now in condition for allowance. Accordingly, Applicant respectfully requests an early notice of allowance. The Examiner is requested to call the undersigned at (505) 897-7200 for any reason that would advance the instant application to issue.

Respectfully submitted,

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**Exhibit A and Exhibit B Follow**

Main Entry: **in·te·grate**

Pronunciation: **īn-tē-grāt**

Function: **verb**

Inflected Form(s): **-grat·ed; -grat·ing**

Etymology: Latin *integratus*, past participle of *integre*, from *integr-*, *integer*

Date: 1638

*transitive senses*

1 : to form, coordinate, or blend into a functioning or unified whole : **UNITE**

2 : to find the integral of (as a function or equation)

3 **a** : to unite with something else **b** : to incorporate into a larger unit

4 **a** : to end the segregation of and bring into equal membership in society or an organization **b** : **DESEGREGATE**  
(*integrate school districts*)

*intransitive senses* : to become integrated

Main Entry: **in·de·pen·dent**

Pronunciation: **in-də-'pen-dənt**

Function: **adjective**

Date: 1611

**1** : not dependent: as **a** (1) : not subject to control by others : SELF-GOVERNING (2) : not affiliated with a larger controlling unit **b** (1) : not requiring or relying on something else : not contingent *(an independent conclusion)* (2) : not looking to others for one's opinions or for guidance in conduct (3) : not bound by or committed to a political party **c** (1) : not requiring or relying on others (as for care or livelihood) *(independent of her parents)* (2) : being enough to free one from the necessity of working for a living *(a man of independent means)* **d** : showing a desire for freedom *(an independent manner)* **e** (1) : not determined by or capable of being deduced or derived from or expressed in terms of members (as axioms or equations) of the set under consideration; *especially* : having linear independence *(an independent set of vectors)* (2) : having the property that the joint probability (as of events or samples) or the joint probability density function (as of random variables) equals the product of the probabilities or probability density functions of separate occurrence

**2** *capitalized* : of or relating to the Independents

**3 a** : MAIN 5 *(an independent clause)* **b** : neither deducible from nor incompatible with another statement  
*'independent postulates'*

**Synonyms** see FREE

**-in·de·pen·dent·ly** *adverb*

**BEST AVAILABLE COPY**

Main Entry: **cen·tral·ize**

Pronunciation: **'sen-trə-,līz**

Function: **verb**

Inflected Form(s): **-ized; -iz·ing**

Date: **1800**

*intransitive senses* : to form a center : cluster around a center  
*transitive senses*

**1** : to bring to a center : CONSOLIDATE (*centralize* all the data in one file )

**2** : to concentrate by placing power and authority in a center or central organization

— **cen·tral·i·za·tion** **\,sen-trə-lə-ˌzā-shən\** *noun*

— **cen·tral·i·z·er** **\'sen-trə-,lī-zər\** *noun*

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# THE ENCYCLOPEDIA OF TELECOMMUNICATIONS, INFORMATION TECHNOLOGY, THE INTERNET, THE WEB, COMPUTING, WIRELESS AND FIBER

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## Bridge Group / Broadband Multimedia

These signals will be understood only if the protocols used on each LAN are the same, e.g. XNS or TCP/IP, but they don't have to be the same for the bridge to do its job for the signals to move on either LAN. They just won't be understood. This differs from gateways and routers. Routers connect LANs with the same protocols but different hardware. The best examples are the file servers that accommodate different hardware LANs. Gateways connect two LANs with different protocols by translating between them, enabling them to talk to each other. The bridge does no translation. Bridges are best used to keep networks small by connecting many of them rather than making a large one. This reduces the traffic faced by individual computers and improves network performance.

**Bridge Group** Virtual LAN terminology for a group of switch interfaces assigned to a singular bridge unit and network interface. Each bridge group runs a separate Spanning Tree and is addressable using a unique IP address.

**Bridge Lifter** A device that removes, either electrically or physically, bridged telephone pairs. Relays, solenoids, inductors, and semiconductors are used as bridge lifters.

**Bridge Protocol Data Unit BPDU** The implementation of the spanning tree protocol (STP) and rapid spanning tree protocol (RSTP) protocols allows network devices to detect and block links that could cause logical loops within a network and to manage redundant links to maintain network integrity in the event of a link failure. Bridges and switches that use the spanning tree protocol (STP) or the rapid spanning tree protocol (RSTP) use the bridge protocol data unit (BPDU) to communicate with each other and exchange information. The BPDU is a datagram that has a specific format to relay the following information about the switch that transmits it:

- Media Access Control (MAC) addresses (switch and port)
- Switch priority
- Port priority
- Port cost
- Root switch identifier
- Root port and designated port identifiers
- Path cost from port to root switch
- Spanning tree enabled devices gather the BPUDUs from other devices on the network and use the information to make configuration decisions such as the election of a root device, the election of a designated switch to become a link between a subnet and the root device, the designation of root and designated ports that are used to communicate STP and RSTP information, the shortest best path between a device and the root switch, and finally the detection and removal of loops in the network.

When a change occurs in a network topology BPUDUs are resent between the network devices to determine if a reconfiguration is required. For instance, if the root switch fails, BPUDUs can be resent to figure out a new root switch. Also if a link between network devices fails, a previously blocked redundant link can be opened to maintain network communication. The exchange of BPUDUs makes configuration and reconfiguration of the spanning tree topology possible, however, STP and RSTP BPUDUs are not the same. RSTP BPUDUs are optimized for quicker configuration of the network and are therefore different than traditional STP BPUDUs. Steps have been taken though to ensure the compatibility between the two standards such that data exchanged between STP and RSTP devices is unhindered.

**Bridge Static Filtering** The process in which a bridge maintains a filtering database consisting of static entries. Each static entry equates a MAC destination address with a port that can receive frames with this MAC destination address and a set of ports on which the frames can be transmitted. Defined in the IEEE 802.1 standard. See also IEEE 802.1.

**Bridge Tap** An undetermined length of wire attached between the normal endpoints of a circuit that introduces unwanted impedance imbalances for data transmission. Also called bridging tap or bridged tap. See Bridged Tap.

**Bridged Jack** A dual position modular female jack where all pins of one jack are permanently bridged to the other jack in the same order.

**Bridged Ringing** A system where ringers on a phone line are connected across that line.

**Bridged Tap** A bridged tap is multiple appearances of the same cable pair at several distribution points. A bridged tap is any section of a cable pair not on the direct electrical path between the central office and the user's offices. A bridged tap increases the electrical loss on the pair — because a signal traveling down the pair will split its signal between the bridges and the main pair. Since most existing telephone company cable pair is bridged, the phone company puts loading coils in the circuit. The effect of load coils is to modify the loss versus frequency response of the pair so it is nearly constant across the voice band. This works for voice. However the loss above the voice band due to load coils

increases rapidly. ISDN, T-1, DSL and other digital circuits operates above the voice band. So, when the phone company installs digital circuits, it must remove the load coils and add a Bridge and Loading Coil.

**Brider** Bridger Amplifier. An amplifier which is connected directly into the main trunk of a CATV system, providing isolation between the main trunk and multiple (high level) outputs.

**Bridging** Bridging across a circuit is done by placing one test lead from a test point on one conductor from another circuit and placing it on one conductor of another circuit. And then doing the same thing to the second conductor. You bridge across a circuit to test the circuit by listening in on it, by dialing on it, by running tests on the line, etc. You can bridge across a circuit by going across the pair in wire, by stripping it, etc. You can bridge across a pair (also called a circuit path) by installing external devices across quick clips on a connecting block.

**Bridging Adapter** A box containing several male and female electrical connectors that allows various phones and accessories to be connected to one cable. Bridging adapters work well with 1A2 key systems and single line phones, but usually not with electronic digital key systems and electronic or digital telephones behind PBXs.

**Bridging Clip** A small piece of metal with a U-shape cross-section which is used to connect adjacent terminals on 66-type connecting blocks.

**Bridging Connection** A parallel connection by means of which some of the normal energy in a circuit may be extracted, usually with negligible effect on the normal operation of the circuit. Most modern phone systems don't encourage bridging connections since the negligible is rarely negligible.

**Bridging Loss** The loss of a given frequency resulting from connecting an impedance across a transmission line. Expressed as the ratio (in decibels) of the signal power delivered to that part of the system following the bridging point before bridging to the total power delivered to that same part after the bridging.

**Bridle Cards** Proprietary Basic Rate ISDN Dual Loop Extension that lets ISDN calls be provided up to 28,000 feet away. See ISDN.

**BRIDS** Bellcore Rating Input Database System.

**Briefcase** A Windows 95 feature that allows you to keep multiple versions of a program on different computers in sync with each other.

**Brightness** An attribute of visual reception in which a source appears to emit more or less light. Since the eye is not equally sensitive to all colors, brightness cannot be quantified term.

**BRISC** Bell-Northern Research Reduced Instruction Set Computing.

**Brite Cards And Services** Basic Rate Interface Transmission Extension by telephone companies extend service from ISDN-equipped central offices to conventional central offices. See ISDN.

**British Telecommunications Act** In 1981 in the U.K. this act separated telecommunications from the post office and created British Telecommunications (BT), see also Post Office Act.

**Brittle** Easily broken without much stretching.

**Broadband** Today's common definition of broadband is any circuit significantly faster than a dial-up phone line. That tends to be a cable modem circuit from your friendly local cable TV provider, a DSL circuit, a T-1 or an E-1 circuit from your friendly local phone company. In short, the term "broadband" can mean anything you want it to be so long as it's "fast." In short, broadband is now more a marketing than a technical term. See also the definitions following.

**Broadband Amplifier** An amplifier with a relatively wide frequency response distinguished from a single channel or narrower band amplifier.

**Broadband Bearer Capability** A bearer class field that is part of the message address message.

**Broadband Integrated Services Digital Network B-ISDN**

**Broadband Inter-Carrier Interface BICI** A carrier-to-carrier interoffice line PNNI (private network-to-network interface) that is needed because carriers do not permit their switches to share routing information or detailed network maps with their competitor's equipment. NOTE: BICI supports permanent virtual circuits between carriers; however, the ATM Forum is currently addressing switched virtual circuits.

**Broadband Loop Emulation Services** See BLES.

**Broadband Multimedia** Broadband multimedia is the present obsession of Terry Matthews, the only man in Canada who founded two companies to reach annual sales of over \$1 billion. He is now working on his third, called March Networks, which

## Broadband Personal Communications Standards / Broadcast Station

on broadband multimedia. Terry's obsession in a nutshell:

As we view the world for broadband communications and as the cost drops dramatically (a factor of a hundredfold over the past five years), we open the world to an entire new range of new telecommunications opportunities — those involving video, voice and data combined as a viewable, storeable, retrievable record. Viewing patients electronically makes for happier nurses, happier, longer living patients; little or online, broadband education. Shrinkage (i.e. stealing) is a \$32 billion "industry" in the U.S. Cut it by 10% with extensive video surveillance tied to cash register transactions and you'll increase retail store net income by 18%. In the utility industry (pipelines, electricity, oil, etc.) security and operations managers must manage hundreds of remote installations, mitigating threats to reliable power delivery. Centralizing video and data records from remote sites allows utilities to collect valuable multimedia (graphic and useful) information that can significantly lower operations cost. Such applications include verification of alarms reported by SCADA (Supervisory Control And Data Acquisition) systems, visual equipment inspection, remote project management and monitoring of conditions of dams, rivers and other electricity generating sites.

The telecommunications industry is about to enter a new era — selling specialty multimedia vertical industry applications. This contrasts with what we do today. We sell horizontal applications. This means that the industry's services are the same for every customer. Every customer buys bandwidth in various widths. And because my bandwidth is indistinguishable from your bandwidth, our major method of competition as telecom carriers has been to cut prices. No more.

Selling these new broadband multimedia applications will help chew up the excess bandwidth carriers installed in recent years.

Selling these applications as applications, not as bandwidth, will significantly boost profits.

Selling these new applications as applications is akin to selling additional channels of television programming on one common pipe — the coaxial cable which your CATV brings to your house.

**Broadband Personal Communications Standards BPCS.** Consists of 120 MHz of new spectrum available for new cellular networks. Also known as second PCS.

**Broadband Switching System** See BSS.

**Broadband Wireless Local Loop B-WLL** is also known as local multi-point distribution service, i.e. LMDS. B-WLL is a way of getting various multimedia services such as high-speed Internet, cable TV, and VOD (video-on-demand) to subscribers. The great advantage of B-WLL is that wireless technology can be used to connect the costly last mile of high data speed networks from an operator's backbone network to individual users. The technology uses millimeter wave signals in the 28 GHz spectrum to transmit voice, video, and signals within a three-mile to 10-mile radius.

B-WLL differs from an ordinary transport system in the way a train differs from a pipeline. Both are data transport systems, but a pipeline can transport only one product from one place to another. A train, on the other hand, can transport many different products over the same infrastructure. LMDS, implemented with multi-service protocol such as ATM, on transport, among others, voice, Internet, Ethernet, video, computer files, and transaction data. It is the multipoint radio technology, combined with the appropriate protocol and access method that gives LMDS its potential tremendous potential. LMDS/B-WLL infrastructure technology can be divided into two basic multiple access technologies: FDD and TDD. FDD equipment uses separate frequencies for the up-link and down-link channels, as opposed to TDD, which uses the same frequency channel for both up-link and down-link, separating the traffic by the use of time slots. FDD equipment differs among vendors in the type of backbone network technology incorporated into the system. The two primary divisions are cable-modem-based versus telecom-network-based. With respect to the telecom-backbone-based solutions, there are two basic architectures being developed: time division multiplex (TDM) and packet-based (either ATM or IP). B-WLL has some advantages: (1) it can be engineered to provide 99.99% availability, rivaling that of the best fiber backbones; (2) it can be deployed quickly. Once a hub is installed (a matter of days), new customers can be added in a matter of hours; (3) it is estimated that deployment of a B-WLL system is about 60% cheaper than fiber-optic cable-based networks. Physical technologies such as copper or fiber require individual rights-of-way to each building, as well as the physical placement of the transport media. (4) Wireless equipment is less vulnerable to sabotage, theft, or damage resulting from exposure to the elements. There are negatives. (1)

It requires line-of-sight. You typically can't shoot it through buildings or hills. (2) Bad weather can affect it.

**Broadcast 1.** To send information to two or more receiving devices simultaneously — over a data communications network, voice mail, electronic mail system, local TV/radio station or satellite system. Broadcast involves sending a transmission simultaneously to all members of a group. In the context of an intelligent communications network, such devices could be host computers, routers, workstations, voice mail systems, or just about anything else. In the less intelligent world of "broadcast media," a local TV or radio station might use a terrestrial antenna or a satellite system to transmit information from a single source to any TV set or radio capable of receiving the signal within the area of coverage. See also Narrowcasting and Pointcasting. Contrast with Unicast, Anycast and Multicast.

2. As the term applies to cable television, broadcasting is the process of transmitting a signal over a broadcast station pursuant to Parts 73 and 74 of the FCC rules. This definition is deliberately restrictive: it does not include satellite transmission, and it does not include point-to-multipoint transmission over a wired or fiber network. In spite of the fact that the broadcast industry and the cable television industry are forever bound together in a symbiotic relationship, they are frequently at odds over policy issues. See Broadcast Station, Compare with Cablecast.

**Broadcast Channel BCCH.** A wireless term for the logical channel used in certain cellular networks to broadcast signaling and control information to all cellular phones. BCCH is a logical channel of the FDCH (Forward Digital Control Channel), defined by IS-136 for use in digital cellular networks employing TDMA (Time Division Multiple Access). The BCCH comprises the E-BCCH, F-BCCH and S-BCCH. The E-BCCH (Extended-BCCH) contains information which is not of high priority, such as the identification of neighboring cell sites. The F-BCCH (Fast-BCCH) contains critical information which must be transmitted immediately; examples include system information and registration parameters. S-BCCH (System message-BCCH), which has not yet been fully defined, will contain messages for system broadcast. See also IS-136 and TDMA.

**Broadcast Domain** Set of all devices that receive broadcast frames originating from any device within the set. Broadcast domains typically are bounded by routers because routers do not forward broadcast frames.

**Broadcast List** A list of two or more system users to whom messages are sent simultaneously. Master Broadcast Lists are shared by all system users and are set up by the System Administrator. Personal Lists are set up by individual subscribers.

**Broadcast Message** A message from one user sent to all users. Just like a TV station signal. On LANs, all workstations and devices receive the message. Broadcast messages are used for many reasons, including acknowledging receipt of information and locating certain devices. On voice mail systems, broadcast messages are important announcement messages from the system administrator that provide information and instructions regarding the voice processing system. Broadcast messages play before standard Voice Mail or Automated Attendant messages.

**Broadcast Net** A British Telecom feature that allows each trader single key access to a group of outgoing lines. This is designed primarily for sending short messages to multiple destinations. The "net" function allows the user to set up and amend his broadcast group.

**Broadcast Quality** A specific term applied to pickup tubes of any type — vidicon, plumbicon, etc. — which are without flaws and meet broadcast standards. Also an ambiguous term for equipment and programming that meets the highest technical standards of the TV industry, such as high-band recorders.

**Broadcast Station** An over-the-air radio or television station licensed by the FCC pursuant to Parts 73 or 74 of the FCC Rules, or an equivalent foreign (Canadian or Mexican) station. Cable television systems are authorized by FCC rules to retransmit broadcast stations; however, such retransmission is subject to a number of restrictions:

- The cable television operator is liable for copyright royalty fees collected by the Copyright Office.
- Under certain conditions, certain broadcast stations are eligible for mandatory carriage.
- Under certain conditions, the cable operator must obtain the permission of the licensee of the broadcast station. This term includes satellite-delivered broadcast "superstations" such as WGN-TV and WWOR, but it does not include:
- Satellite-delivered non-broadcast programming services (HBO, ESPN, C-SPAN, QVC, etc.).

## High Level Modulation / HiperLAN/2

**High Level Instructions** Translating human instructions into the machine language computers can understand. Instructions don't have to (in order to tell the computer what to do). Some languages such as Basic, FORTRAN, COBOL and Pascal are high level languages.

Several layers of levels (at a High Level) away from the actual bit manipulation (which is also called "bit twiddling" by the Hackers). Compare with Low Level.

**High Level Modulation** Modulation at the last amplifier stage of a transmitter.

**High Low Tariff** A tariff in which two prices are given for something — a high rate and a low rate. The first high/low tariff from AT&T was for leased voice lines where higher rates were paid per mile for connections between routes that have much traffic. Higher density and greater charges per mile are made for all other (low density) routes. The high/low tariff was significant because it was AT&T's response to competition from local telephone carriers like MCI and it was one of the first moves away from nationwide rate structures, which was the way things were done under monopoly.

**High Memory Area** HMA. High Memory Area is the first 64KB of extended memory (using MS-DOS 5.0 or 6.0), you can save some conventional memory (i.e., RAM memory) by loading the operating system into HMA. Add the line DOS=HIGH to the CONFIG.SYS to use HMA for the operating system.

**High Order Bit** Hobbit. Also known as an "alt bit," "high bit," and "meta bit." In a standard byte of 8 bits, a high-order bit generally is the first bit in a byte. Since the header is the first bit in a byte, it is the first bit that a device sees, and therefore the first bit of information is taken. The high-order bit can be used for a wide variety of purposes in a communications environment, all of which identify to the receiving device something of significance relative to the handling of the associated data. For example, the high-order bit of a packet can be used by a device to indicate the priority level of a packet data packet transfer. The hobbit also can be used to indicate the highest level of security, or even if the network can route the data properly.

**High Pass Filter** A filter which passes frequencies above a certain frequency and attenuates those below.

**High Performance Computing Act** An Act passed by Congress in 1991 to encourage the creation of computer "superhighways" linking computers at universities, research laboratories and industrial organizations. One objective of the High Performance Computing Act is the establishment of a gigabit/second National Research and Education Network (NREN) that will link the government, industrial and higher education communities involved in general research activities. Such a gigabit network would provide a much increased bandwidth compared with the existing National Science Foundation network, which is evolving from a 1.5 megabit per second (T-1) backbone to 45 megabit per second (T-3).

**High Performance Computing and Communications** See **HPC**.

**High Performance Parallel Interface** HIPPI. A high-speed multi-signal connection to an RS-232 interface but for high-speed computers, etc. HIPPI provides up to 1,000 MB/s interconnections using 32 (or 64) bit wide parallel data paths (32 bytes) between 25 clusters (or longer, if use fiber). Standardization activity is in ANSI X3T9.5.

**High Performance Routing** HPR. A local area networking term. HPR is the evolution of APPN — referred to in the past as APPN+ — that adds IP-like dynamic routing and dynamic alternate routing in the event of path failure — features to support a routing mechanism that works at Layer 2 using a RIF concept similar to ATM or SDH.

**High Power Amplifier** HPA. A device which provides the high power needed to transmit over 20,000 miles plus from an earth station to a satellite.

**High Reception** The ability of a voice recognition system containing active vocabulary to accept those sounds that do not match closely the words in its vocabulary.

**High Resolution TV** Television with over 1,000 lines per screen, about double the resolution of present systems. Sometimes called HDTV, for high-definition television.

**High Starts Format** A standard format for placing files and directories on CD-ROMs developed by the International Standards Organization as ISO 9660.

**High Speed Digital Subscriber Loop** See HDSL.

**High Speed Local Network** HSLN. A local network designed to provide high speed links between expensive, high-speed devices, such as mainframes and mass storage.

**High Speed Printer** Any printer which can print at over 100 lines a minute. Like

many definitions, this one is arbitrary. Some people claim a dot matrix is "high speed" and a letter quality, daisy wheel is a "low speed" printer. Laser printers could be classed as high speed printers, maybe.

**High Speed Register Set** Registers are storage locations within the CPU that are used to hold both the data to be operated on and the instructions to accomplish the operations.

**High Speed Signal** An AT&T definition for a signal traveling at the DS-3 rate of 44.736 Mbps (million bits per second) or at either 90 Mbps or at 180 Mbps (Optical mode).

**High Split** 1. A broadband cable system in which the bandwidth used to send toward the head-end (reverse direction) is approximately 6 MHz to 180 MHz, and the bandwidth used to send away from head-end (forward direction) is approximately 200 MHz to 400 MHz. The guard band between the forward and reverse directions (180 MHz to 220 MHz) provides isolation from interference. High split requires a frequency translator which transfers the originating signals to other frequency ranges at the head-end. In either direction, Historically, CATV systems used the spectrum below Channel 2 for inbound transmissions from the user premise to the head-end; that frequency range is 5-30/40 MHz.

2. A term used in radio communications, including paging and cellular, for several ranges of frequency used to connect a remote site to a main site. For instance, the low-split might be 806.0125 MHz and the high-split 851.0125-869.9875 MHz. Frequency translators are used to transfer the signal to another frequency range from that point forward.

**High Tech** A high-falutin' (i.e. overly pretentious) way of saying technology. I excised the term out of this dictionary out of disgust.

**High Tier** A PCS cell phone service for users moving in a high-speed automobile. Higher PCS systems are often straightforward evolutions of current digital cellular systems. In contrast, a low-tier is a PCS cell phone service for pedestrians or slow moving vehicles (no more than 30 to 40 mph). An evolution of cordless systems originally intended for in-building applications. Systems use small cells, so they can be designed with low-power transmitters and experience fewer handoffs than high-tier PCS systems (with high-speed, mobile users). Systems provide lower cost and higher-quality services, for low-speed users only.

**High Usage Groups** Trunk groups established between two central office switching machines to serve as the first choice path between the machines and thus, handle the bulk of the traffic. See **High Usage Trunk Group**.

**High Usage Trunk Group** A Bellcore definition. A trunk group that is designed to overflow a portion of its offered traffic to an alternate route.

**High Water Mark** A financial term. Let's say you give a money manager \$100,000 of your money to manage. You agree to pay him 20% profit-sharing of all your gains. And you agree to do this annually. Let's say one year your manager loses 20% of your money. But the next year he earns 15%. He doesn't receive any profit-sharing of your 15% until he has earned back what he lost and is above the high water mark — the place you started. For a more formal definition, here's one from [www.hedgeworks.com](http://www.hedgeworks.com). High-water mark is an investor's capital basis in a given year used to determine the minimum value to which a manager's performance fee is measured. For example, a manager may only charge an investor a performance fee for any gains achieved over the investor's capital basis or the gains achieved since the last performance fee was charged.

**Highway** 1. Another word for BUS. A common path or set of paths over which many channels of information are transmitted. The channels of the highway are separated by some electrical technique.

2. The Information Superhighway. In 1995, a consulting firm called Ovum defined the superhighway as a mechanism for providing access to electronic information and content held on network servers. It has four key features, according to Ovum: A. It supports two-way communications. B. It offers more than just simple voice telephony. C. It is interactive and provides real-time, cooperative communications, and D. It supports electronic screen-based applications.

**Highway Construction Supervisor** A consultant to provide assistance in specification, installation and/or operation of systems and software for accessing the information highway.

**Highway Patrol** A slang term for the U.S. Congress.

**Hijacking** An attack on a computer system in which an established TCP/IP session is redirected in mid-session to an unauthorized host system.

**HiperLAN/2** A high-speed standard for broadband wireless LAN applications approved by the ETSI in February 2000, consisting of three profiles for the corporate, pub-

H